NVLAP LAB CODE:

IONIZING RADIATION DOSIMETRY PROGRAM-SPECIFIC APPLICATION

FACILITY FORM

1. Attach or summarize below the position description, including the required qualifications, of the person (Dosimetry Director, Technical Director, or Manager, however named) who has technical responsibility for the processing area(s) for which accreditation is sought.

Name

Phone Number ( ) Fax Number ( )

E-Mail

Title of Position

Description of Position

Required Qualifications

2. Indicate the type/model of equipment used by completing the table on the next page.

Use a separate column for each reader or other processing equipment. Complete with an "X" as appropriate, or complete with the requested information. Duplicate the table if more than 3 columns are needed, and attach to this application.

3. Will this facility be providing nonaccredited dosimetry service in addition to accredited dosimetry service? _____ If yes, please explain:

4. Indicate the total number of staff members who perform processing functions at this facility: _____

5. **Provide on a separate sheet a detailed description of each dosimeter;** e.g., number and type of sensitive element(s), filtration type and thickness, type of holder, and extremity type (ring or wrist). Use complete manufacturer's model numbers for all components as applicable. If custom-made or designed, please indicate. Indicate which processing equipment is used for each dosimeter.

EQUIPMENT USED				
TLD READER				
Automatic				
Manual				
Processing Type	Whole			
	Extremity			
Reader	Model No.			
	Manufacturer			
TLD	Model No.			
	Manufacturer			
FILM TYPE				
Densitometer	Model No.			
	Manufacturer			
Processing Type	Whole			
	Extremity			
ELECTRONIC DOSIMETER				
Manufacturer				
Model No.				
Reader/Interface Type				
Processing Type	Whole			
	Extremity			
OTHER PROCESSING DEVICES (For example, Track Etch)				

INSTRUCTIONS FOR COMPLETING THE DOSIMETER AND TEST CATEGORY SELECTION SHEETS (WHOLE BODY AND EXTREMITY)

There are two Dosimeter and Test Category Selection Sheets: one for Whole Body and one for Extremity. These sheets are the official records of the dosimetry processing services for which accreditation is requested. The information for the processor's Scope of Accreditation will be taken from these sheets. The processor should proficiency test for each category for which it provides monitoring service and for each type of dosimeter used, unless it is equivalent to others tested by the laboratory (see NIST Handbook 150-4, Sec. (f)(4), page 8). Carefully record each dosimeter designation and indicate those radiation test categories selected for each dosimeter.

These sheets are also used to compute the Proficiency Testing Fee.

Sections A and B must be completed whether proficiency testing is required or not.

Section A - Write in the designation in a separate block for each dosimeter model for which you are seeking accreditation. Mark an "X" under the individual Dosimeter Designations for each Radiation Test Category selected.

Section B - Add up the number of "X's" (dosimeter models) in each category (row).

Complete the following sections only when proficiency testing fees are due or when a new dosimeter model is tested!

Section C - These are proficiency testing fees for the Radiation Test Categories.

Section D - Multiply the Category Testing Fee (Section C) by the Total Dosimeter Models Per Category (Section B) for each Radiation Test Category selected. Enter the results in this column.

Section E - Add up the category fees in Section D and enter the total Proficiency Testing Fee in Section E. Total the amounts in Section E on the sheets for both Whole Body and Extremity and enter the total on Line 4 of the Fee Calculation Worksheet.

NVLAP LAB CODE:

DOSIMETER AND TEST CATEGORY SELECTION SHEET

WHOLE BODY DOSIMETERS [1]

Radiation Test Category	**A** Dosimeter Model Designation								**B** Total Dosimeter Models Per Category	**C** Category Testing Fee	**D** Total Fee Per Category
IA										$ 825	
IB										$ 825	
IC										$ 825	
IIA										$ 875	
IIB										$ 875	
IIC										$ 825	
IID										$ 825	
IIIA										$ 825	
IIIB										$ 825	
IIIC										$ 825	
IVA										$ 925	
IV B										$ 875	
IVC										$ 875	
VA										$ 925	
VB										$ 925	
VIA										$ 925	
VIB										$ 925	
VIC										$ 925	
										E TOTAL FEE = (Enter the Total Fee on Line 4 of the Fee Calculation Worksheet.)	

[1] Testing for whole body dosimeters, including TLD, Film, and Electronic Dosimeters. See NIST Handbook 150-4 and the ANSI N13.11 standard for additional information on categories, energy ranges and tolerance limits.

DOSIMETER AND TEST CATEGORY SELECTION SHEET

EXTREMITY DOSIMETERS[1]

Radiation Test Category	**A** Dosimeter Model Designation								**B** Total Dosimeter Models Per Category	**C** Category Testing Fee	**D** Total Fee Per Category
I										$ 825	
II										$ 825	
IIIA										$ 825	
IIIB										$ 825	
IVA (^{137}Cs)										$ 825	
IVB (^{60}Co)										$ 825	
VA										$ 875	
VB										$ 875	
VC										$ 875	
VD										$ 875	
VI										$ 875	
VII										$ 875	
										E TOTAL FEE = (Enter the Total Fee on Line 4 of the Fee Calculation Worksheet.)	

[1] Category III(C) is not included in this table. There may be other differences between this table and the table in ANSI N13.32.

INSTRUCTIONS FOR PARTICIPATING IN PROFICIENCY TESTING FOR WHOLE BODY AND EXTREMITY DOSIMETERS

The NVLAP dosimetry proficiency testing will be based on the American National Standard N13.11-2001 for Whole Body dosimeters and ANSI N13.32 for Extremity dosimeters.

During a phase-in period for ANSI N13.11-2001, from July 1, 2002 to June 30, 2004, laboratories will have an opportunity to determine whether their whole body dosimeters will conform to the new standard. Conformance must be demonstrated for each model/type dosimeter in each category for which the accreditation will cover by July 1, 2004.

A complete test of a dosimeter model requires 15 dosimeters to be irradiated over a 3-month period, in each radiation category for which accreditation is desired and the dosimeters evaluated in terms of shallow and deep dose equivalent as applicable.

Processors applying for accreditation for the first time, those introducing new models, or those required to retest failures, may select a starting date of their choice. Accredited processors renewing accreditation for the same dosimeter(s) are generally required to begin the test on the renewal date of their accreditation every other year. Other arrangements can be made with sufficient lead time. Contact Betty Ann Torres at 301-975-8446 or *betty.torres@nist.gov.*

Dosimeters, taken from the general population, must be submitted to the testing laboratory in three separate groups, a group sent each month over the 3-month period. Each group must include five dosimeters of each model/type for each radiation category selected. Each monthly shipment must also include at least one shipping control and at least six extra dosimeters of each model/type to be used as spares. The first month must also contain two extra dosimeters to be used for photographing (dosimeters may have to be destroyed).

Dosimeters are shimmed to be parallel to the front face of the phantom and delivered doses are normally reported to the front face of the phantom. If you want the doses reported to the active element of the dosimeter, the offset between the phantom face and the active element must be reported to the testing laboratory.

Each individual dosimeter sent for testing must have a unique identification code. A code must not be repeated at any time during a 3-month test. This code will be used to document/report the performance of each dosimeter.

Place all identical dosimeters in a separate container (plastic bag) and mark each container with the designation used for that model/type dosimeter. (You may only specify dosimeters for categories I and VI.)

The dosimeters must be shipped to allow sufficient time for them to arrive at the testing laboratory at least 2 (TWO) days before the beginning of each month. Dosimeters received after the FIFTH day of a month will be returned unirradiated.

Please ship the dosimeters in a *sturdy container* that will survive a round trip through a parcel shipping system. Send the dosimeters to:

Battelle for the US DOE
Attention: R. A. Fox, P7-03
790 6th Street
Richland, WA 99352.

Each month after the dosimeters have been irradiated, they will be returned to you via a private parcel system for evaluation. *Please provide the testing laboratory with a name and an adequate shipping address (no P.O. Box) for the return of the dosimeters.*

All evaluated doses must be reported back to the testing laboratory within 30 days of your receipt of the irradiated dosimeters. *Failure to comply with this 30-day limit will result in all dosimeters in any affected test category being voided.*

Send all testing results or any correspondence by U.S. Mail Service to:

Battelle, PNNL
Attention: R. A. Fox, P7-03
902 Battelle Boulevard
Richland, WA 99352.

You may make corrections/changes to your reported data until the testing laboratory receives the final set of your data.

The testing laboratory will send the results of your testing to the primary contact person within 3 weeks of receiving all of your evaluated doses.

If satisfactory performance is not demonstrated for a dosimeter in any category attempted during this phase-in period, you will be informed by the testing laboratory along with the test results. You will also be notified as to what retesting will be required before July 1, 2004.

If you need general assistance or assistance for special situations (such as damaged or lost badges or transit doses) or if you need to request that a badge(s) be voided, please call Robert Fox at 509-376-5596.

NEUTRON CALIBRATION IRRADIATIONS

Since it is proper to calibrate neutron dosimeters to the neutron spectrum in which they will be used, the testing laboratory will provide free calibration irradiations for neutron dosimeters. **THESE CALIBRATION IRRADIATIONS WILL BE PROVIDED ONLY THE FIRST TIME A DOSIMETER MODEL IS SUBMITTED FOR TESTING.** This calibration should be adequate for all future use unless otherwise notified.

If you wish to obtain a calibration irradiation, include five dosimeters in a separate container that is clearly marked "FOR NEUTRON CALIBRATION" with the first monthly shipment. These dosimeters will be returned to you along with a report showing the neutron dose delivered.

BETA (^{204}Tl and ^{85}Kr) CALIBRATION IRRADIATIONS

With the varied dosimeter response to the unfiltered ^{204}Tl and the addition of the ^{85}Kr source, the testing laboratory will provide free calibration irradiations for processors testing low energy betas in category III or V. **THESE CALIBRATION IRRADIATIONS WILL BE PROVIDED ONLY THE FIRST TIME A DOSIMETER MODEL IS SUBMITTED FOR TESTING.** This calibration should be adequate for all future use unless otherwise notified.

If you wish to obtain a calibration irradiation, include five dosimeters in a separate container that is clearly marked "FOR BETA CALIBRATION" with the first monthly shipment. These dosimeters will be returned to you along with a report showing the source used and the beta dose delivered.

SPECIFIC INSTRUCTIONS FOR ELECTRONIC PERSONNEL DOSIMETERS (EPDs) PROFICIENCY TESTING

Except as modified below, the overall procedure for proficiency testing EPDs will be the same as that specified in ANSI N13.11-2001. The performance criteria are the same as those required by ANSI N13.11-2001 for whole body personnel dosimeters. The registration form is the same as the one used for whole body personnel dosimeters.

A videotape recording of the test procedure may be available for verification of the results in case questions or comments arise.

1) The processor will submit five (5) EPD dosimeters each month, randomly selected from the dosimeter population used by the laboratory for personnel monitoring, for each category to be tested. The proficiency testing laboratory (PTL) will test the dosimeters to the ANSI N13.11-2001 criteria.

2) The maximum dose will be limited to the range of the EPD for all categories including the accident categories. The processor must supply the range of the EPD or it will be assumed that there is no limit.

3) The units must be capable of being reset by the PTL.

4) Each unit needs a visible unique identifying number or set of characters.

5) The EPDs shall be shipped with the alarms turned off.

6) Each model will be photographed in order to verify that the dosimeter model proficiency tested is the one used by the laboratory/processor. The dosimeters will not be taken apart unless specified otherwise by NVLAP.

7) The units should be shipped in such a state that they are clear of any recorded dose so the PTL does not overload the memory or display.

8) If it is necessary to use a separate read-out unit with the EPDs, then this unit, and the appropriate software and cables, must also be shipped to the PTL.

9) All units must be shipped with operating instructions; a complete manual should not be sent.

10) The laboratory must include two spares to be used in the case of obvious dosimeter malfunctions, such as battery failures, display failures, erratic function, and if the dosimeter indicates no response to the radiation exposure at all.

11) The participant should place a mark on the EPD if it is necessary to center the device at somewhere other than the geometrical center of the case. The PTL will assume that the case should be centered over the reference point on the phantom.

If possible, three EPDs will be placed on the phantom, each one from a different processor (if available). The dose values obtained from this configuration can be used as an additional comparison between the different dosimeters irradiated, and can also be used if there is a dispute between the PTL and one of the processors on the delivered dose.

NVLAP LAB CODE: _____

PROFICIENCY TESTING REGISTRATION - WHOLE BODY DOSIMETERS

Instructions: Complete this sheet for each dosimeter model that will be submitted for testing. Send one copy to NVLAP by mail or fax to the attention of Betty Ann Torres, NIST, 100 Bureau Drive, Stop 2140, Gaithersburg, MD 20899-2140; fax 301-926-2884, **AND** mail one copy to R. A. Fox, Battelle, for US DOE, Mail Stop P7-03, 790 6th Street, Richland, WA 99352, along with the first group of dosimeters.

Processor's Company Name: _____

Business Mailing Address: _____

_____

Primary Contact Person: _____

Phone Number: _____ E-Mail Address: _____

Name & Shipping Address for Dosimeter Return (if different from above): **(NO P.O. BOX)**

_____

_____

Phone Number: _____ E-Mail Address: _____

CALENDAR QUARTER FOR PROFICIENCY TESTING: CY _____

Jan-Feb-Mar ☐ Apr-May-June ☐ Jul-Aug-Sep ☐ Oct-Nov-Dec ☐

Fill out the following information for each dosimeter model being tested (use copy of this form for additional dosimeters if necessary) and check the appropriate subcategories below from the ANSI N13.11-2001 standard:

TYPE OF DOSIMETER:

Dosimeter Manufacturer: _____ Holder Manufacturer: _____

Dosimeter Model #: _____ Holder Model #: _____

Dosimeter Active Element Offset from Phantom (cm): _____

BETA/PHOTON

Film ☐
TLD ☐
Electronic ☐ Range (if applicable) _____
Other ☐ Specify _____

NEUTRON

TLD Albedo ☐
NTA Film ☐
Polycarbonate ☐
Electronic ☐ Range (if applicable) _____
Other ☐ Specify _____

DOSIMETER ELEMENT DESCRIPTION

	ELEMENT 1	ELEMENT2	ELEMENT 3	ELEMENT 4	OTHER
Detector Type (i.e., TLD, OSL, TED)					
Detector Composition (i.e., Al_2O_3, CR39)					
Detector Thickness (mg/cm^2)					

CATEGORY I: ACCIDENTS, PHOTONS
- I_A General (IB + IC Random) ☐
- I_B ^{137}Cs ☐
- I_C M150 ☐

CATEGORY II: PHOTONS
- II_A General ☐
- II_B High E ☐
- II_C Medium E ☐
- II_D Narrow Spectrum ☐

CATEGORY III: BETAS
- III_A General (IIIB + IIIC Random) ☐
- III_B High E ☐
- III_C Low E ☐

CATEGORY IV: PHOTON MIXTURE
- IV_A General (IIA + IIB) ☐
- IV_B IIB + IIC ☐
- IV_C IIB + IID ☐

CATEGORY V: BETA/PHOTON MIXTURE
- V_A General (II + III) ☐
- V_B IIB + III ☐

CATEGORY VI: NEUTRON/ PHOTON MIXTURES
- VI_A General (VIB + VIC Random) ☐
- VI_B ^{252}Cf + II (Select Photon Category) ☐
  IIA ☐ IIB ☐ IIC ☐ IID ☐
- VI_C $^{252}Cf(D_2O)$ + II (Select Photon Category) ☐
  IIA ☐ IIB ☐ IIC ☐ IID ☐

NVLAP LAB CODE:

PROFICIENCY TESTING REGISTRATION - EXTREMITY DOSIMETERS

Instructions: Complete this sheet for each dosimeter model that will be submitted for testing. Send one copy to NVLAP by mail or fax to the attention of Betty Ann Torres, NIST, 100 Bureau Drive, Stop 2140, Gaithersburg, MD 20899-2140; fax 301-926-2884, **AND** mail one copy to R. A. Fox, Battelle, for US DOE, Mail Stop P7-03, 790 6th Street, Richland, WA 99352, along with the first group of dosimeters.

Processor's Company Name: _____

Business Mailing Address: _____

_____

Primary Contact Person: _____

Phone Number: _____ E-Mail Address: _____

Name & Shipping Address for Dosimeter Return (if different from above): **(NO P.O. BOX)**

_____

_____

Phone Number: _____ E-Mail Address: _____

CALENDAR QUARTER FOR PROFICIENCY TESTING: CY _____

Jan-Feb-Mar ☐ Apr-May-June ☐ Jul-Aug-Sep ☐ Oct-Nov-Dec ☐

Fill out the following information for each dosimeter model being tested (use copy of this form for additional dosimeters if necessary) and check the appropriate subcategories below from the ANSI N13.32 standard:

TYPE OF DOSIMETER:

Dosimeter Manufacturer: _____ Holder Manufacturer: _____

Dosimeter Model #: _____ Holder Model #: _____

Dosimeter Active Element Offset from Phantom (cm): _____

BETA/PHOTON

Film ☐
TLD ☐
Electronic ☐ Range (if applicable) _____
Other ☐ Specify _____

NEUTRON

TLD Albedo ☐
NTA Film ☐
Polycarbonate ☐
Electronic ☐ Range (if applicable) _____
Other ☐ Specify _____

DOSIMETER ELEMENT DESCRIPTION

	ELEMENT 1	ELEMENT2	ELEMENT 3	ELEMENT 4	OTHER
Detector Type (i.e., TLD, OSL, TED)					
Detector Composition (i.e., Al_2O_3, CR39)					
Detector Thickness (mg/cm^2)					

CATEGORIES

I	Accidents, Low energy	☐
II	Accidents, High energy	☐
III_A	General, low energy	☐
III_B	High energy techniques	☐
IV_A	High energy, ^{137}Cs	☐
IV_B	High energy, ^{60}Co	☐

CATEGORIES

V_A	Beta, High energy	☐
V_B	Beta, Low energy	☐
V_C	Beta, General	☐
V_D	Slab, Uranium	☐
VI	Mixtures, Photons	☐
VII	Mixtures, Photon & Beta	☐